

ABSTRACT

A compound semiconductor device includes hexagonal silicon carbide crystal substrate and a boron-phosphide-based semiconductor layer formed on the silicon carbide crystal substrate, wherein the silicon carbide crystal substrate has a surface assuming a $\{0001\}$ crystal plane, and the boron-phosphide-based semiconductor layer is composed of a $\{111\}$ crystal stacked on and in parallel with the $\{0001\}$ crystal plane of the silicon carbide crystal substrate, and when the number of the layers contained in one periodical unit of an atomic arrangement in the $[0001]$ crystal orientation of the silicon carbide crystal substrate is n , an n -layer-stacked structure included in the $\{111\}$ crystal plane forming the $\{111\}$ crystal has a stacking height virtually equal to the c -axis lattice constant of the silicon carbide crystal substrate.